

EMPLOYEE				
NAME	DEPT	MGRID	SALARY	BONUS

- (C1) NAME \neq NULL
- (C2) DEPT = "US"
- (C3) BONUS $\leq 0.4 \times$ SALARY
- (C4) FOREIGN KEY (DEPT, MGRID)
REFERENCES MANAGER (DEPT, MGRID)
- (C5) (DEPT = "USSales") \Rightarrow SALARY \leq MGR
(DEPT, MGRID) . SALARY

EMPLOYEE			
NAME	DEPT	MGRID	SALARY

- (C6) NAME \neq NULL
- (C7) DEPT = "US"
- (C8) 500 \leq MGRID \leq 999
- (C9) 10000 \leq SALARY \leq 200000

Figure 1

200

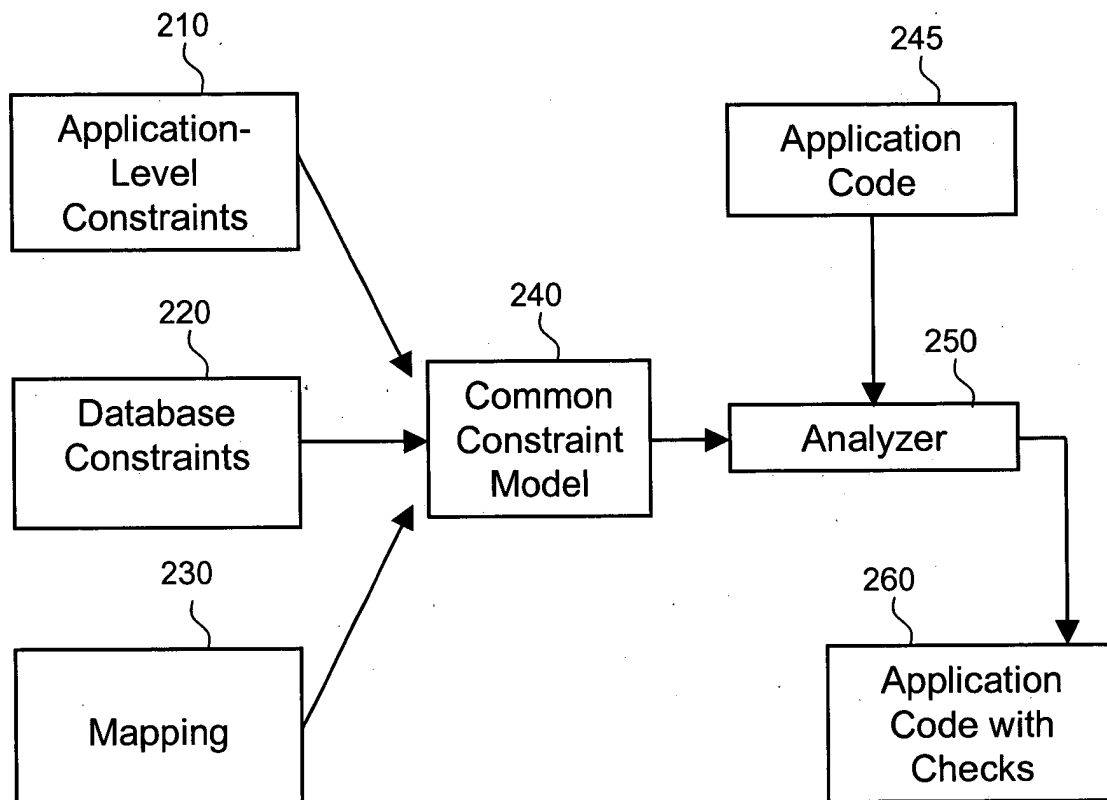
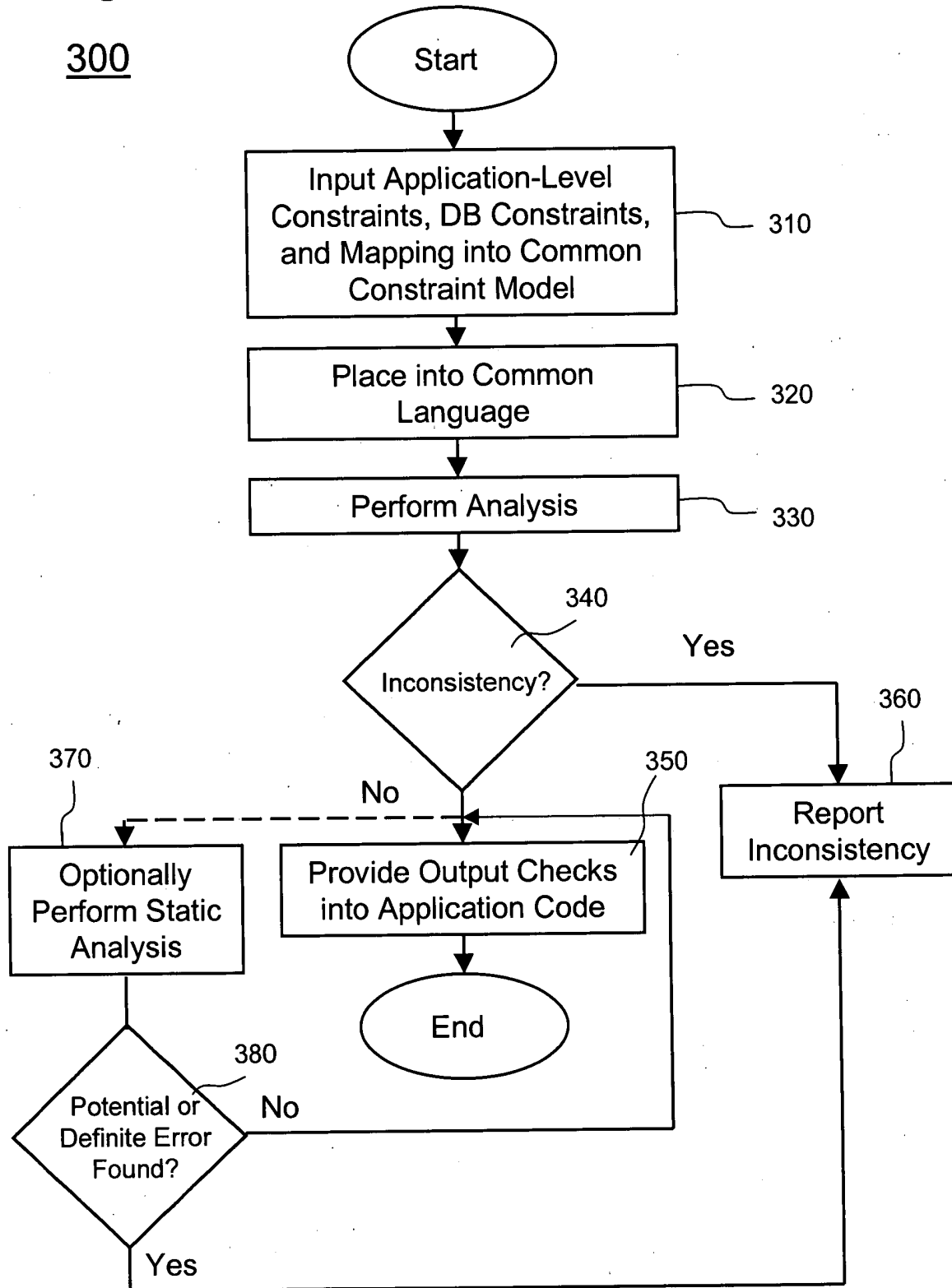


Figure 2

Figure 3



400

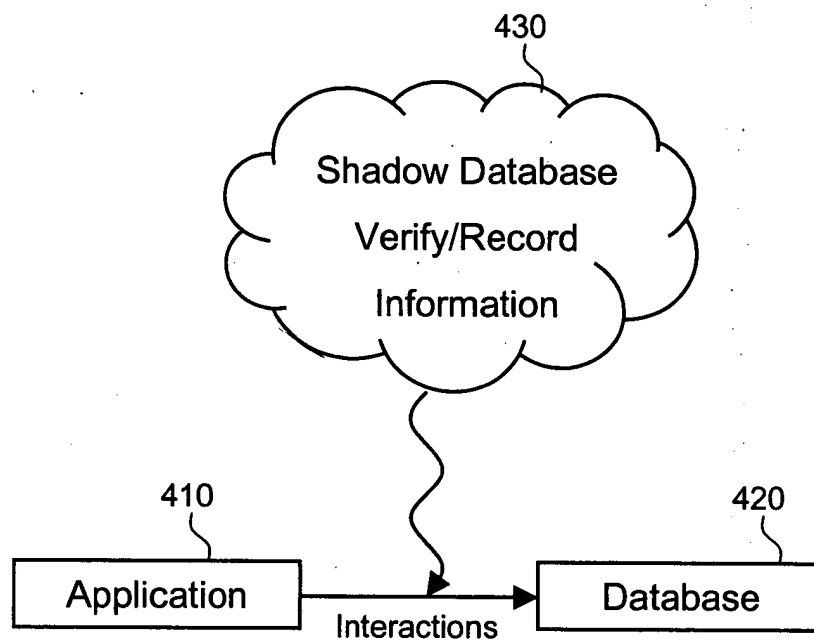


Figure 4

500

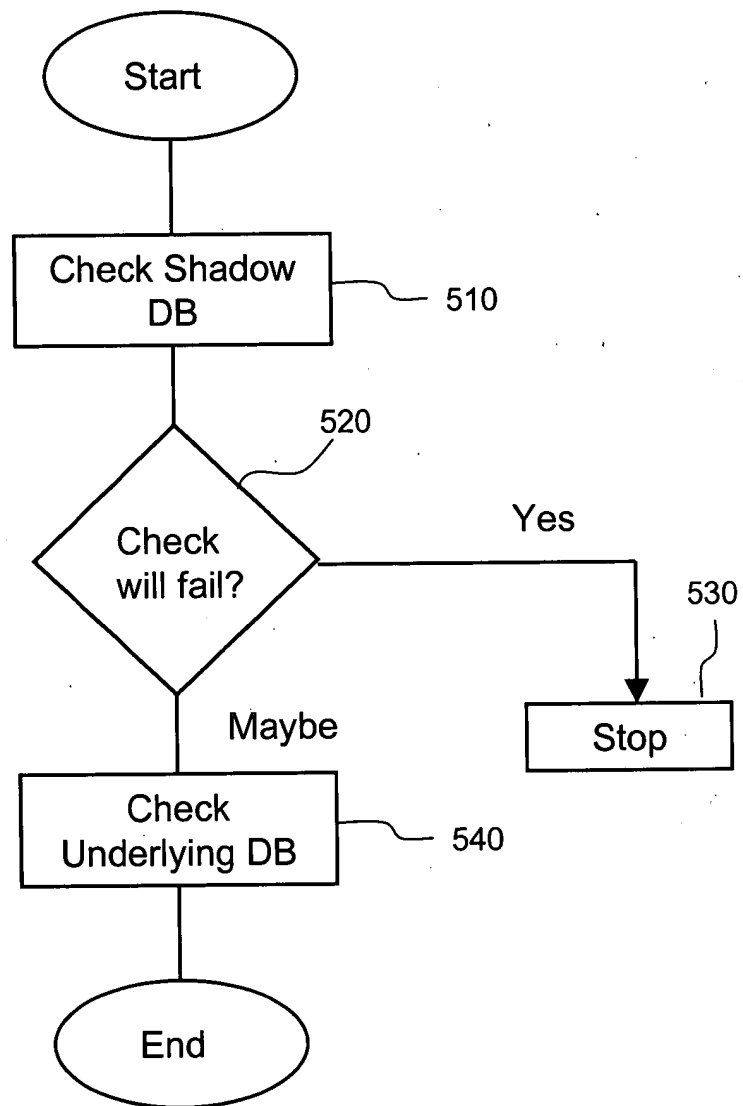


Figure 5

```
DISCONNECT ALL;
DROP DB FOOL;
CREATE DB FOOL;
CONNECT TO FOOL;
```

```
CREATE TABLE ODED.DCODES (
C CHARACTER(1) NOT NULL,
CHECK (
(C='A') OR (C='B') OR (C='C') OR
(C='D') OR (C='E')),
PRIMARY KEY (C)
);
```

```
CREATE TABLE ODED.CUSTOMER (
CUSTOMERID BIGINT NOT NULL,
NAME CHARACTER(20) NOT NULL,
CHECK (
( (CUSTOMERID >= 100000) AND
(CUSTOMERID <= 200000) ) OR (
(CUSTOMERID >= 20000000) AND
(CUSTOMERID <= 40000000) ),
PRIMARY KEY (CUSTOMERID) );
```

```
ALTER TABLE ODED.CUSTOMER DATA
CAPTURE CHANGES NOT VOLATILE;
```

```
CREATE TABLE ODED.DISCOUNT (
DISCOUNTCODE CHARACTER(1) NOT NULL,
PERCENT INTEGER NOT NULL,
DELAY INTEGER NOT NULL,
CUSTID BIGINT NOT NULL,
-- CHECK (
-- (AMOUNT>1) AND (AMOUNT <= 100000)),
-- CHECK ((ORDERNUM >= 0) AND (ORDERNUM
<= 10000000)),
CHECK (
((1<= DELAY) AND (DELAY <=7)) OR ((10
<= DELAY) AND (DELAY <= 30)) OR ((45 <=
DELAY) AND (DELAY <= 60))),
CHECK(PERCENT in (5, 10, 15) OR ((20
<= PERCENT ) AND (PERCENT <= 30))),
CHECK(DISCOUNTCODE in ('A',
'B','C','D','E')),
PRIMARY KEY (CUSTID, DISCOUNTCODE),
FOREIGN KEY (CUSTID) REFERENCES
ODED.CUSTOMER (CUSTOMERID) ON DELETE
CASCADE,
```

```
FOREIGN KEY (DISCOUNTCODE) REFERE
ODED.DCODES (C)
);
```

```
ALTER TABLE ODED.DISCOUNT DATA
CAPTURE CHANGES NOT VOLATILE ;
```

```
CREATE TABLE ODED.INVENTORY (
ITEMNUMBER CHARACTER(8) NOT NULL,
AMTINSTOCK INTEGER NOT NULL,
CATEGORY VARCHAR(20) NOT NULL,
CHECK (
(AMTINSTOCK >=0) AND (AMTINSTOCK
<=10000)),
CHECK(
( ( ITEMNUMBER Like 'EU%' ) AND
(ITEMNUMBER > 'EU000000') AND
(ITEMNUMBER < 'EU999999')) OR
( ( ITEMNUMBER Like 'US%' ) AND
(ITEMNUMBER > 'US000000') AND
(ITEMNUMBER < 'US999999')) OR
( ( ITEMNUMBER Like 'WL%' ) AND
(ITEMNUMBER > 'WL000000') AND
(ITEMNUMBER < 'WL999999'))
),
PRIMARY KEY (ITEMNUMBER) );
```

```
ALTER TABLE ODED.INVENTORY DATA
CAPTURE CHANGES NOT VOLATILE;
```

```
CREATE TABLE ODED.CUSTOMERCATEGORY (
CUSTOMERID BIGINT NOT NULL,
CATEGORY VARCHAR(20) NOT NULL,
-- CHECK (
-- (AMTINSTOCK >=0) AND (AMTINSTC
<=10000)),
PRIMARY KEY (CUSTOMERID, CATEGORY
FOREIGN KEY (CUSTOMERID) REFERENCE
ODED.CUSTOMER (CUSTOMERID) ON DELE
CASCADE
);
```

```
ALTER TABLE ODED.INVENTORY DATA
CAPTURE CHANGES NOT VOLATILE ;
```

```
CREATE TABLE ODED.ORDER (
ORDERNUM BIGINT NOT NULL,
CUSTID BIGINT NOT NULL ,
AMOUNT DECIMAL NOT NULL,
TAX DECIMAL NOT NULL,
DISCOUNTCODE CHARACTER(1) NOT NULL,
```

Figure 6A

```

CHECK ((AMOUNT>1) AND (AMOUNT <=
100000)),
CHECK ((ORDERNUM >= 0) AND (ORDERNUM <=
10000000)),
CHECK((TAX <= .4 * AMOUNT) AND ((TAX =
25) OR (TAX =50) OR (TAX >=100))),
PRIMARY KEY (ORDERNUM),
FOREIGN KEY (CUSTID) REFERENCES
ODED.CUSTOMER (CUSTOMERID) ON DELETE
CASCADE,
FOREIGN KEY (DISCOUNTCODE) REFERENCES
ODED.DCODES (C)
);

ALTER TABLE ODED.ORDER DATA CAPTURE
CHANGES NOT VOLATILE ;

CREATE TABLE ODED.ORDERDETAILS(
ORDERNUM BIGINT NOT NULL,
ITEM# CHARACTER(8) NOT NULL ,
NOITEMSREQUESTED INTEGER NOT NULL,
NOITEMSSHIPPED INTEGER NOT NULL,
NOITEMSRECEIVED INTEGER NOT NULL,
CHECK ((NOITEMSREQUESTED >0) AND
(NOITEMSREQUESTED<101)),
CHECK (NOITEMSRECEIVED <=
NOITEMSSHIPPED),
CHECK(NOITEMSSHIPPED <=
NOITEMSREQUESTED),
PRIMARY KEY (ORDERNUM, ITEM#),
FOREIGN KEY (ITEM#) REFERENCES
ODED.INVENTORY (ITEMNUMBER) ON DELETE
CASCADE,
FOREIGN KEY (ORDERNUM) REFERENCES
ODED.ORDER (ORDERNUM) ON DELETE CASCADE
);

ALTER TABLE ODED.ORDERDETAILS DATA
CAPTURE CHANGES NOT VOLATILE ;

CREATE TRIGGER CatTrigger
AFTER INSERT ON
ODED.CUSTOMERCATEGORIES
REFERENCING NEW AS xxx
FOR EACH ROW MODE DB2SQL
WHEN (NOT EXISTS
(SELECT * FROM ODED.INVENTORY
WHERE
xxx.CATEGORY=ODED.INVENTORY.CATEGORY
))
SIGNAL SQLSTATE '7599
('Cannot insert category field ')

CREATE TRIGGER InvTrig1
AFTER DELETE ON ODED.INVENT
REFERENCING OLD AS xxx
FOR EACH ROW MODE DB2SQL
WHEN (EXISTS
(SELECT * FROM
ODED.CUSTOMERCATEGORIES
WHERE
xxx.CATEGORY=ODED.CUSTOMERCATEGOR
TEGORY
))
SIGNAL SQLSTATE '7600
('Cannot delete referenced catego

insert into ODED.INVENTORY
values('EU123456', 10, 'grinders'

```

Figure 6B

700

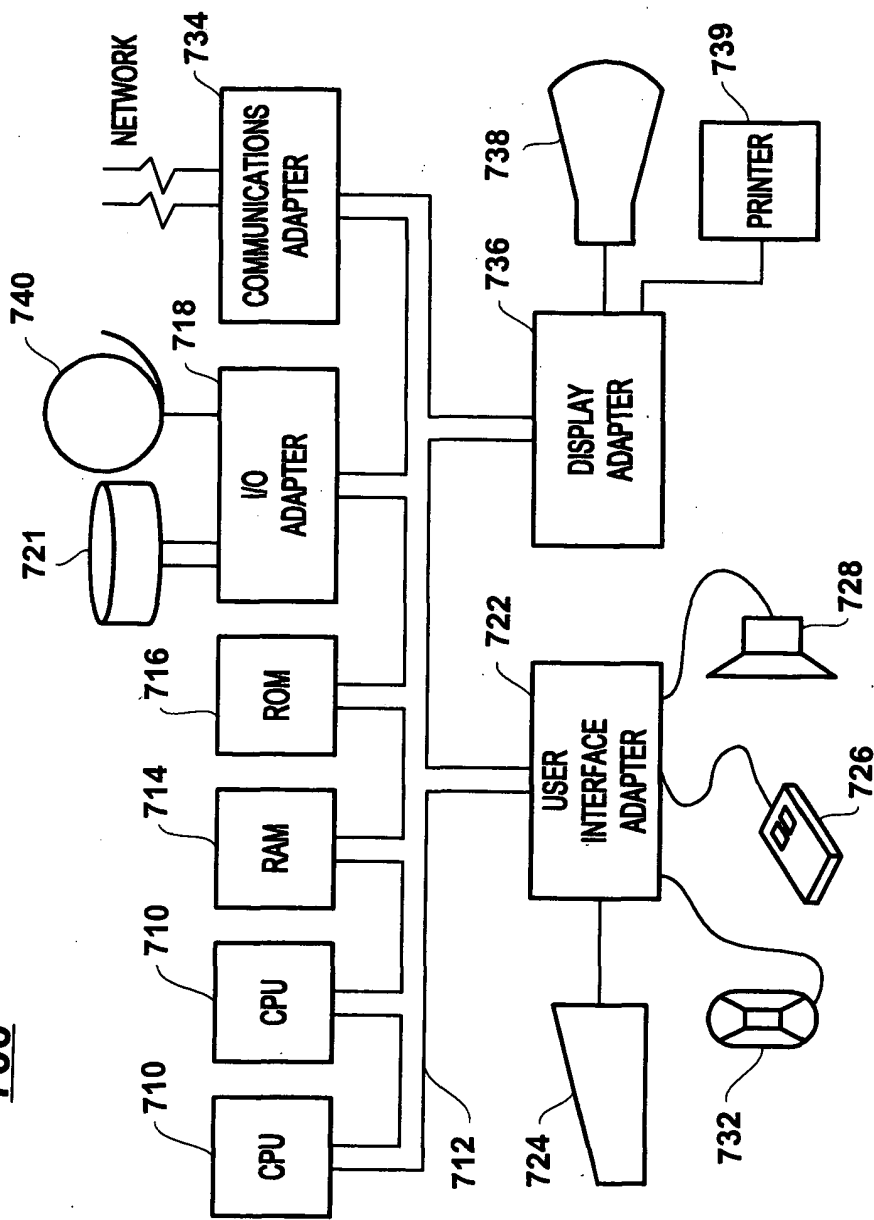


Figure 7

800

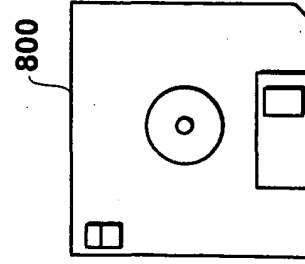


Figure 8